

59. (New) A method of reversibly sterilizing a mammal, comprising providing a polymeric compound that remains a solution until exposed to critical minimum values of at least two environmental stimuli, wherein the polymeric compound forms a gel upon exposure to the critical minimum values of the at least two environmental stimuli; delivering the polymeric compound to a lumen or other body region in need of closure when the polymeric compound is a solution; and exposing the polymeric compound to the critical minimum values of the at least two environmental stimuli such that the polymeric compound forms a gel in situ in the lumen or other body region resulting in reversible sterilization of the mammal.

60. (New) The method of claim 59, wherein the sterilization of the mammal is reversed when one of the at least two environmental stimuli falls below the critical minimum value.

61. (New) The method of claim 59, wherein the exposing the polymeric compound to the critical minimum values of the at least two environmental stimuli comprises exposing the polymeric compound to at least two environmental stimuli selected from the group consisting of temperature, pH, ionic strength, electrical field, magnetic field, solvent composition, light, pressure and chemical composition of the ambient environment.

62. (New) A method for sterilizing a male mammal wherein the sterilization is reversible, comprising:

delivering a polymeric compound that remains a solution until exposed to critical minimum values of at least two environmental stimuli, and forms a gel upon exposure to the critical minimum values of the at least two environmental stimuli, to vas deferens of the male mammal when the polymeric compound is a solution; and

exposing the polymeric compound to the critical minimum values of the at least two environmental stimuli such that the polymeric compound forms a gel in situ in the vas deferens thereby reversibly sterilizing the male mammal.

63. (New) The method of claim 62, wherein the sterilization of the mammal is reversed when one of the at least two environmental stimuli falls below the critical minimum value.

64. (New) A polymeric compound for reversible sterilization, the compound comprising:

an aqueous polymeric solution upon exposure to a critical minimum value of a single environmental stimuli;

a gel upon exposure of the polymeric solution to critical minimum values of at least two environmental stimuli, wherein the gel forms the aqueous polymeric solution upon exposure of the gel to at least one of the at least two environmental stimuli falling below the critical minimum value;

wherein the polymeric compound is the aqueous polymeric solution when injected into a specific locus in a human body; and

wherein the compound is a gel in the specific locus in a human body when exposed to the critical minimum values of the at least two environmental stimuli.

65. (New) The compound of claim 64, wherein the at least two environmental stimuli are selected from the group consisting of temperature, pH, ionic strength, electrical field, magnetic field, solvent composition, light, pressure and chemical composition of the ambient environment.

66. (New) The compound of claim 64, wherein the aqueous polymeric solution is injected into vas deferens of a mammal.

67. (New) The compound of claim 64, wherein the aqueous polymeric solution forms the gel upon exposure to critical minimum values of at least two in vivo environmental stimuli that are imposed externally.

68. (New) The compound of claim 64, wherein the at least two environmental stimuli are in vivo conditions found in the human body.